

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

As rescanning documents *will not* correct images,  
Please do not report the images to the  
Image Problem Mailbox.

# (12) UK Patent Application (19) GB (11) 2 160 790 A

(43) Application published 2 Jan 1986

(21) Application No 8416261

(22) Date of filing 26 Jun 1984

(71) Applicant  
**Gaskell & Co. (Bacup) Limited (United Kingdom),  
Rhoden Mill, Oswaldtwistle, Lancashire**

(72) Inventor  
**Mohammed Mofizuddin Satiar**

(74) Agent and/or Address for Service  
**Hughes Clark Andrews & Byrne, 63 Lincoln's Inn Fields,  
London WC2A 3JU**

(51) INT CL<sup>4</sup>  
**B05D 3/12**

(52) Domestic classification  
**B2E 1204 1319 1703 430T FA  
U1S 1220 B2E**

(56) Documents cited  
**None**

(58) Field of search  
**B2E**

(54) **Improvements in the manufacture of carpet underlays**

(57) A carpet underlay is formed by applying a layer of foamed rubber to a backing surface and controlling the thickness of the layer by a doctor blade having teeth or projections spaced along its operative edge while imparting in a direction normal to the surface reciprocating movements between the blade and layer whereby areas of foamed rubber each bounded by grooves are formed.

GB 2 160 790 A

## SPECIFICATION

## Improvements in the Manufacture of Carpet Underlays

- This invention relates to the manufacture of  
 5 carpet underlays incorporating a layer of foamed  
rubber and its object is the formation on the surface  
of the rubber of distinctive patterns which enhance  
the appearance of the product and improve its  
performance.  
 10 Normally the layer of foamed rubber is formed by  
 aerating suitably compounded latex, which may be  
 natural, synthetic, or a mixture of both, and  
 spreading it on a backing material separate from the  
 carpet, or on the reverse side of the carpet itself. The  
 15 thickness of this layer is controlled by a doctor blade  
 set at a fixed distance, usually about 7mm, from the  
 surface on which the foamed latex is deposited. The  
 doctor blade is set at an angle to the backing surface  
 and the foamed rubber is fed onto the surface just in  
 20 front of the blade which controls and forms an even  
 layer of the foamed rubber as it is carried by the  
 backing surface past the blade. This blade may be  
provided with projections or teeth uniformly spaced  
along its edge. Such projection may be about  
 25 3—5mm wide and may penetrate the foam to the  
depth of 3—4mm, that is approximately 50%, so  
forming on the surface of the foam a pattern of  
longitudinal grooves. A wavy appearance can be  
produced by moving the doctor blade backwards  
 30 and forwards along its length. The pattern can be  
varied by varying the speed of this movement.

- According to the present invention, a carpet  
 underlay is formed by applying a layer of foamed  
 rubber onto backing material and controlling the  
 35 thickness of the layer by the action of a doctor blade  
 having teeth or projections spaced along its  
 operative edge while imparting in a direction  
 normal to the layer reciprocating movements  
 between the blade and layer whereby areas of  
 40 foamed rubber each bounded by grooves of  
 controlled depth are formed. Advantageously, these  
 reciprocating movements take place at intervals for  
 brief periods and may be such that the tips of the  
 teeth or projections completely penetrate the depth  
 45 of the foam at predetermined points. Therefore, the  
movements may be arranged to result in the  
formation on the surface of the foam of a pattern of  
squares, rectangles or parallelograms, with deep  
indentations at all corners. This results in an  
 50 attractive appearance and tends to improve the grip  
of the foamed rubber surface.

- This additional movement towards and away  
 from the backing sheet may be produced by any  
 conventional means applied to the backing material,  
 55 or doctor blade or both such as cams, pneumatic  
 actuators, solenoids, or a combination of such  
 means. The spread foam is dried and processed in

- th usual manner, depending on the type of material  
used. It may incorporate heat, or delayed gelling  
 60 agents, although the invention is primarily intended  
to be used without such ingredients. The pattern  
does not collapse under the action of gravity partly  
because foamed latex exhibits slightly thixotropic  
properties, and partly because the air content  
 65 renders the foam very light.

- In one specific example, the doctor blade has  
 projections 2cms apart distributed along its edge.  
 Thus, as the doctor blade traverses the foamed  
 latex, grooves 2cms apart and about 3mm deep, i.e.  
 70 about half the depth of the foamed material, are  
 formed. However, at predetermined intervals, the  
 latex is raised for a brief period to form transverse  
 grooves while the projections penetrate the latex to  
 the backing material. Thus, squares or rectangles  
 75 are formed with deep indentations at the corners.  
 The dimensions of the rectangles in the direction  
 of the travel over the mass of latex past the doctor  
 blade depends on the duration of the intervals  
 between the up and down movements of the latex.  
 80 These intervals can be varied to produce a  
predetermined pattern.

## CLAIMS

1. A method of manufacturing a carpet underlay  
 comprising depositing foamed rubber latex  
 compound on a surface of a sheet of backing  
 85 material or of the reverse side of the carpet itself,  
 effecting relative movement between said surface  
 and a doctor blade extending transversely over said  
 surface whereby the doctor blade is caused to  
 90 spread the latex foam over the surface, further  
 imparting relative reciprocating movements  
 between said surface and said doctor blade, said  
 reciprocating movements having a component  
 normal to said surface for forming a pattern in the  
 95 foamed rubber during the spreading thereof on the  
 surface, and then drying and vulcanising the deposit  
 thus formed.
2. A method according to claim 1, in which a  
 doctor blade having teeth or projections spaced  
 along its operative edge is used whereby areas of  
 100 foamed rubber each bounded by grooves of  
 controlled depth are formed.
3. A method according to claim 1 or claim 2, in  
 which the reciprocating movements are effected at  
 105 intervals of comparatively brief periods during the  
 spreading of the foamed rubber on said surface.
4. A method according to claims 2 and 3, in which  
 the tips of the teeth or projections are caused  
 completely to penetrate the depth of the foamed  
 110 rubber at predetermined points.
5. A method substantially as hereinbefore  
 described in the accompanying specific example.
6. A carpet underlay when made by a method  
 according to any one of the preceding claims.